

## 62mm Customer Specific IGBT Module

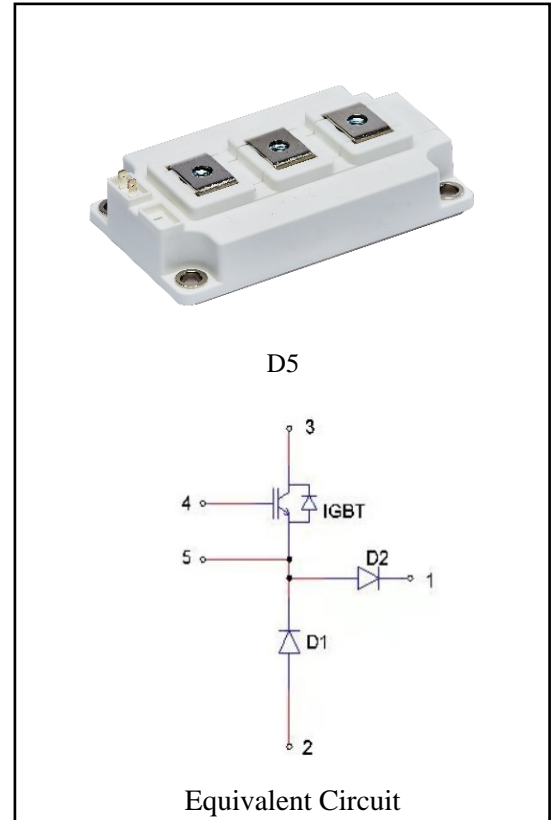
$V_{CES}=1200V, I_{C\ nom}=450A/I_{CRM}=900A$

### Features :

- 1200V Trench /Field Stop process
- Low switching losses
- $V_{cesat}$  has a positive temperature coefficient

### Applications:

- High Frequency Power Supplies
- Welding Machine



## IGBT ,Inverter

### Maximum Ratings

Parameter	Conditions	Symbol	Value	Unit
Collector-Emitter voltage	$T_{vj}=25^{\circ}C$	$V_{CES}$	1200	V
Continuous DC collector current	$T_c=100^{\circ}C, T_{vj\ max}=175^{\circ}C$	$I_{C\ nom}$	450	A
Repetitive peak collector current	$t_p=1\ ms$	$I_{CRM}$	900	A
Gate emitter voltage		$V_{GE}$	$\pm 20$	V

## Characteristic Values

Parameter	Conditions	Symbol	Value			Unit
			Min.	Typ.	Max.	
Collector-Emitter saturation voltage	$V_{GE}=15V, I_C=450A$ $T_{vj}=25^{\circ}C$	$V_{CEsat}$		2.13	2.60	V
Gate-Emitter threshold voltage	$I_C=17mA, V_{GE}=V_{CE}$ $T_{vj}=25^{\circ}C$	$V_{GE(th)}$	5.10	5.70	6.30	
Gate charge	$V_{GE}=-15V...+15V$	$Q_G$		2.09		$\mu C$
Internal gate resistor		$R_{Gint}$		1.80		$\Omega$
Input capacitance	$f=1\text{ MHz}, V_{CE}=25\text{ V}, V_{GE}=0\text{ V}$ $T_{vj}=25^{\circ}C$	$C_{ies}$		31.82		nF
Reverse transfer capacitance		$C_{res}$		1.09		
Collector-emitter cut-off current	$V_{CE}=1200V, V_{GE}=0\text{ V}$ $T_{vj}=25^{\circ}C$	$I_{CES}$			2	mA
Gate-emitter leakage current	$V_{CE}=0\text{ V}, V_{GE}=20\text{ V}$ $T_{vj}=25^{\circ}C$	$I_{GES}$			200	nA
Turn-on delay time	$I_C=450\text{ A}, V_{CE}=600\text{ V}$ $V_{GE}=\pm 15\text{ V}, R_G=3.6\Omega$ (inductive load) $T_{vj}=25^{\circ}C$	$t_{d\ on}$		170		ns
Rise time		$t_r$		90		
Turn-off delay time		$t_{d\ off}$		380		
Fall time		$t_f$		110		
Turn-on energy loss per pulse			$E_{on}$		49.54	
Turn-off energy loss per pulse		$E_{off}$		42.00		
Temperature under switching conditions		$T_{vj\ op}$	-40		150	$^{\circ}C$

## Diode, Inverter

### Maximum Ratings

Parameter	Conditions	Symbol	Value	Unit
Repetitive peak reverse voltage	$T_{vj}=25^{\circ}C$	$V_{RRM}$	1200	V
Continuous DC forward current		$I_F$	240	A
Repetitive peak forward current	$t_p=1ms$	$I_{FRM}$	480	A
$I^2t$ -value	$t_p=10ms, \sin 180^{\circ}, T_{vj}=125^{\circ}C$	$I^2t$	2280	$A^2s$

## Characteristic Values

Parameter	Conditions	Symbol	Value			Unit
			Min.	Typ.	Max.	
Forward voltage	$I_F=240A, V_{GE}=0V$ $T_{vj}=25^{\circ}C$	$V_F$		2.10	2.60	V

## Diode1 and Diode2

Parameter	Conditions	Symbol	Value	Unit
Repetitive peak reverse voltage	$T_{vj}=25^{\circ}C$	$V_{RRM}$	1200	V
Continuous DC forward current		$I_F$	400	A
Repetitive peak forward current	$t_p=1ms$	$I_{FRM}$	800	A

## Characteristic Values

Parameter	Conditions	Symbol	Value			Unit
			Min.	Typ.	Max.	
Forward voltage	$I_F=400A, V_{GE}=0V$ $T_{vj}=25^{\circ}C$	$V_F$		2.30	2.70	V

## Module

Parameter	Conditions	Symbol	Value	Unit	
Isolation test voltage	RMS, $f=50Hz, t=1min$	$V_{ISOL}$	4000	V	
Internal isolation			$Al_2O_3$		
Storage temperature		$T_{stg}$	-40	125	$^{\circ}C$
Mounting torque for modul mounting		M	3.0	6.0	Nm
Weight		W	325		g

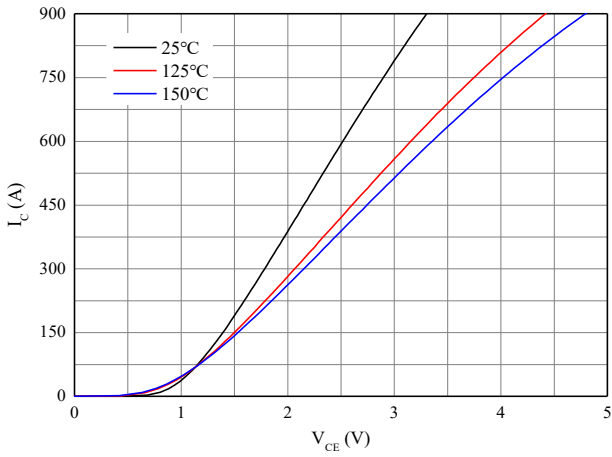


Figure 1. Typical output characteristics ( $V_{GE}=15V$ )

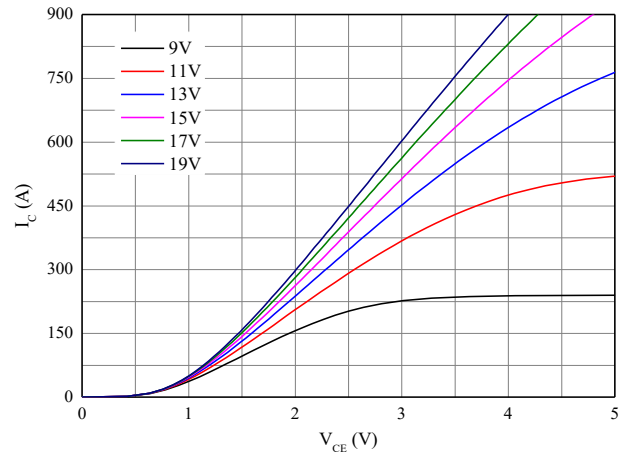


Figure 2. Typical output characteristic ( $T_{vj}=150^{\circ}C$ )

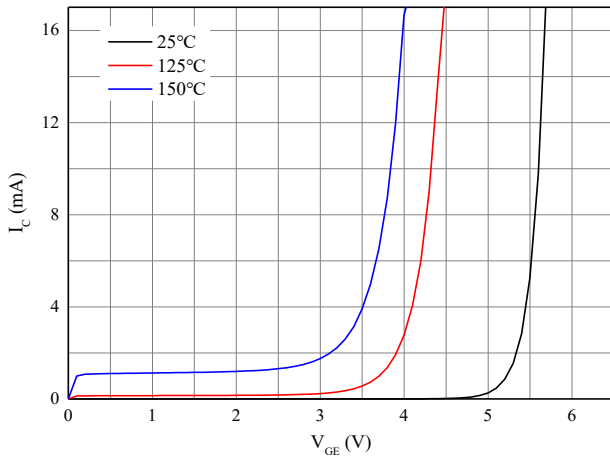


Figure 3. Threshold characteristic ( $V_{GE}=V_{CE}$ )

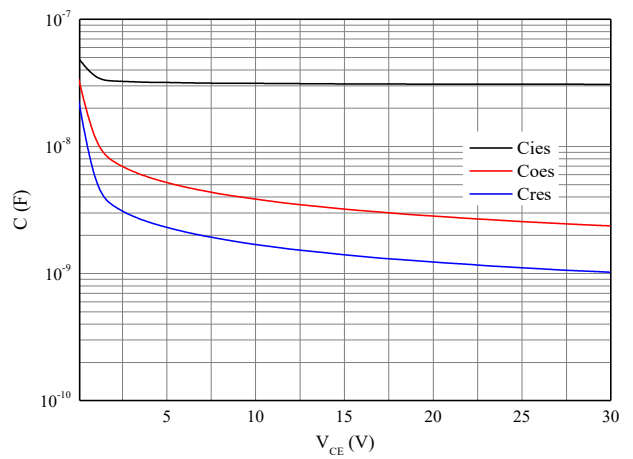
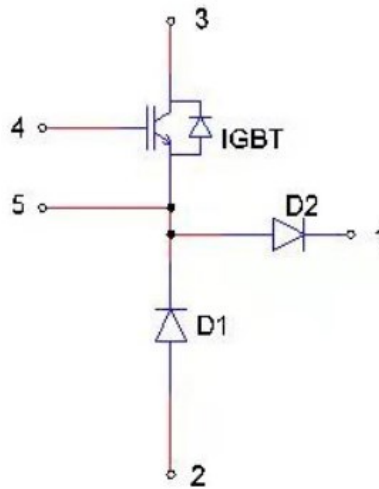


Figure 4. Capacitance characteristic

**Circuit diagram**



**Package outlines**

